CLAIMS

1. A method for manufacturing a liquid crystal display,

wherein spacer particles are located at an arbitrary position on a substrate by ejecting a dispersion of spacer particles by an ink-jet method,

a diameter D_1 of an adhered droplet of said dispersion of spacer particles, having adhered to said substrate, and a diameter D_2 of the adhering spacer particles, remaining after the said dispersion of spacer particles is evaporated, satisfying a relationship of Equation (1).

$$D_2 < (D_1 \times 0.5) \qquad (1)$$

2. The method for manufacturing a liquid crystal display according to Claim 1,

wherein the surface temperature of a substrate at the time when a dispersion of spacer particles adheres to the substrate is at least 20°C lower than a boiling point of a liquid having the lowest boiling point among liquids contained in said dispersion of spacer particles.

3. The method for manufacturing a liquid crystal display according to Claim 1,

wherein the surface temperature of a substrate at the time when a dispersion of spacer particles adheres to the substrate is at least 20°C lower than a boiling point of a liquid having the lowest boiling point among liquids contained in said dispersion of spacer particles, and the surface temperature of a substrate is 90°C or less during a time period until the dispersion of spacer particles is completely evaporated.

4. The method for manufacturing a liquid crystal

display according to Claim 1, 2 or 3,

wherein a dispersion of spacer particles comprises a medium containing a liquid having a boiling point of less than 100°C in an amount of 10 to 80% by weight and spacer particles, and the content of said spacer particle is 0.05 to 5% by weight.

5. The method for manufacturing a liquid crystal display according to Claim 1, 2 or 3,

wherein a dispersion of spacer particles comprises a medium containing a liquid having a boiling point of less than 100°C in an amount of 10 to 80% by weight and a liquid having a boiling point of 150°C or more in an amount of 80 to 10% by weight, and spacer particles, and the content of said spacer particle is 0.05 to 5% by weight.

6. The method for manufacturing a liquid crystal display according to Claim 1, 2, 3, 4 or 5,

wherein the dispersion of spacer particles has a contact angle of 25 to 70° relative to an orientation layer on a substrate.

7. A substrate for a liquid crystal display,

wherein a color filter comprising a pixel area arrayed in accordance with a given pattern and a shading area defining said pixel area is formed,

an orientation layer, a contact angle of which relative to the dispersion of spacer particles is θb, being present in an area representing said pixel area and, an area, a contact angle of which relative to the dispersion of spacer particles is θa, being present at least in a part of an area representing said shading area, and said θa and said θb satisfying a relationship expressed by Equation (2).

$$\theta a < \theta b \qquad (2)$$

8. A method for manufacturing the substrate for a liquid crystal display according to Claim 7,

wherein after an orientation layer, a contact angle of which relative to the dispersion of spacer particles is θb, is uniformly formed on the whole surface of a substrate, by applying non-contact energy irradiation to a position at which the spacer particle is chosen to be locate, the orientation layer in the position is removed or modified to bring a contact angle relative to the dispersion of spacer particles into θa.

9. A method for manufacturing the substrate for a liquid crystal display according to Claim 7,

wherein a photosensitive polyimide resin precursor or a photosensitive polyimide resin is uniformly applied to a substrate having a surface, a contact angle of which relative to the dispersion of spacer particles is θa, and by exposing the photosensitive polyimide film via the medium of a mask and developing the film, an orientation layer comprising polyimide resin is formed in the form of a pattern on the surface of the substrate other than the position at which the spacer particle is chosen to be locate and a contact angle of the surface of said orientation layer relative to the dispersion of spacer particles is brought into θb.

10. A method for manufacturing a liquid crystal display using the substrate for a liquid crystal display according to Claim 7,

wherein the dispersion of spacer particles is ejected onto the area where a contact angle of said substrate for a liquid crystal display relative to the dispersion of spacer particles is θa to locate the spacer particles.

11. A dispersion of spacer particles,

which comprises spacer particles in which a vinyl-based thermoplastic resin, formed by free radical polymerizing vinyl-based monomers having a hydrophilic functional group and/or an alkyl group having 3 to 22 carbon atoms, is combined with the surface of an inorganic fine particle and/or an organic fine particle by graft polymerization; and

a medium comprising water and/or a hydrophilic organic solvent and having the surface tension of 25 to 50 mN/m at 20°C,

said spacer particles being dispersed in the form of a single particle in said medium.

12. The dispersion of spacer particles according to Claim 11,

wherein the vinyl-based monomer contains a vinyl-based monomer having a hydrophilic functional group in an amount of 30 to 80% by weight and a vinyl-based monomer having an alkyl group having 3 to 22 carbon atoms in an amount of 20 to 60% by weight.

13. The dispersion of spacer particles according to Claim 11 or 12,

wherein the hydrophilic functional group is at least one species selected from the group consisting of hydroxyl group, carboxyl group, sulfonyl group, phosphonyl group, amino group, amide group, ether group, thiol group and thioether group.